Feb 18th

Tuesday, February 18, 2014 10:22 AM

When a process is non-preemptive, the OS must wait for the process to complete to continue, one at a time

Process:
How it works:

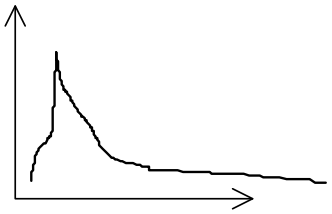
-CPU Bound ↓

- IO Bound ↓

-CPU Bound ↓

Repeat

Number of bursts



Run time(ms)

Preemptive is switching multiple processes

- The OS can do the switching
  - When a process asks for IO
  - When a process asks to Terminate
  - When a process does I/O interrupt
  - When a process is complete

The first two work for cooperative multiprocessing

One through four took preemptive multiprocessing

- Must be able to handle processes within itself.
  - Disable Interrupts
  - Shortest Amount of time
  - Locks must be unlocked before enabling interrupts
  -
- Our scheduler needs to be stopped control interrupts and allow something to happen.
  - We will focus on CPU utilization and Turnaround Time
- Ways to analyze a scheduler (Scheduler Criteria) see the book
  - CPU utilization: as high as possible (very important)
  - Throughput: Number of processes run in a certain time
  - Turnaround time: time from submission to completion
    - By putting time in front of the ./program we can see the time
      - Time ./program
  - Wait time: time the process spends in the wait queue
    - Used by Time ./program
  - Response time: time process submission to first process execution
    - How quickly a process responds from the time it's called until execution

- Process table on pg 270 of the book, our process submission times should be tested against this

- First come first Sever (FCFS) 6.3.1
  - A non-preemptive scheduling algorithm
    - Displayed with a Gant Chart
  - This is a very slow algorithm based on Turnaround time
  - This is miserable
  - Response time for 4 processes = 9ms
  - Turnaround time for 4 process = 15ms

- Shortest Job First (SJF) Section 6.3.2
  - A non-preemptive scheduling algorithm
    - Displayed on a Gant Chart to show Turnaround time = submission to completion
  - A little better than FCFS but not much
  - Response time for 4 processes = 8ms
  - Turnaround time for 4 process = 14ms

- Shortest runtime next

- PREEMPTIVE
- Response time for 4 processes = 4ms
- Turnaround time for 4 process = 13s